RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/750,185_
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RAW SEQUENCE LISTING   DATE: 07/11/2005
PATENT APPLICATION: US/10/750,185   TIME: 15:59:33

            Input Set : E:\MMI1100-2.txt
            Output Set: N:\CRF4\07112005\J750185.raw

 3 <110> APPLICANT: MMI GENOMICS, INC.
 4   DeNISE, Sue K.
 5   KERR, Richard
 6   ROSENFELD, David
 7   HOLM, Tom
 8   BATES, Stephen
 9   FANTIN, Dennis
11 <120> TITLE OF INVENTION: COMPOSITIONS FOR INFERRING BOVINE TRAITS
13 <130> FILE REFERENCE: MMI1100-2
15 <140> CURRENT APPLICATION NUMBER: US 10/750,185
16 <141> CURRENT FILING DATE: 2003-12-31
18 <150> PRIOR APPLICATION NUMBER: US 60/437,482
19 <151> PRIOR FILING DATE: 2002-12-31
21 <160> NUMBER OF SEQ ID NOS: 64922
23 <170> SOFTWARE: PatentIN version 3.1
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 600
27 <212> TYPE: DNA
28 <213> ORGANISM: Bovine MMBT02545
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35 cggattaaag aaacaatcca atggtgacaa agaaatattt ataacataaa tcataattaa   180
37 atattagata aataaacata aaaataatgt cccaaaagga ttcccaagaa agacaattta   240
39 atggacaaag gcagggatat atatgaatgc ttaaatggtt tcatgaatat tgattagctr   300
41 gatttttttt agtgtgtgag tgaaggagta gtatgctgag ggacaaaagt gatggaccca   360
43 aatctgagtt ttatggtttt tcagataaat acgcattttt gtttatttac acagagagat   420
45 attgtcctac taatatgata tctccaccag gcccattaaa acttatgtgc taacctctgt   480
47 ttcacacatt aacgacaaac aggacataac gcttctgcac gaaaggaaac acatactgag   540
49 agttgtttga aacaaaaaaa aaaaaggaag aaggaggaaa aacctgatct tttgtaaata   600
52 <210> SEQ ID NO: 2
53 <211> LENGTH: 600
54 <212> TYPE: DNA
55 <213> ORGANISM: Bovine MMBT05243
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60 acagactcat gaatctactt ataaaggtgt gacactgaca catttcttca ctgtaggaac   120
62 gcccatgact gtgtgccagc tacctcgaac atggggaaat cgtttctcat caattgtacc   180
64 ttttagcgca aaagtttctt aagctgtagg tgcagaagag attgtcccag tctgacagat   240
66 ggagaaactg aggcagagag gacgaagggc ttgtttcctc atcagagcta gagagcagay   300
68 gtgtttcata ttttttttcc tcagactacg ttttccacc tgctactgta aggaccctca   360
70 ccaagtttat gacccttaaa atgtctttta tttcttaaaa tccaaaagta ataattaata   420
72 gccccaagaa cttagtgcca ctgcagctgc tgaggccagg aacggttact cggtaggagc   480

RAW SEQUENCE LISTING   DATE: 07/11/2005
PATENT APPLICATION: US/10/750,185   TIME: 15:59:33

Input Set : E:\MMI1100-2.txt
Output Set: N:\CRF4\07112005\J750185.raw

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 87 gccaagaaga aagataaagg tatgtgaagt aacagactga aatttttatg tttaaaggaa   120
 89 gcttccattt ttaatcctct ttgtgttcac tactttatat tgaaagtatt cttcaggctg   180
 91 attttttttt tcccccctcc aacccttcag tcatacgcag tgaaaaaagt catatgaatt   240
 93 aaatataaat aggctttcta ggctttaaaa attattaaat attcacagtt cctaagtcty   300
 95 gactctttct gtggcagcca ggcactactc aggggaagag atataaaagt agctttaaaa   360
 97 cagaaggaca agatgctact ttctttagta aaaaggtgaa agaaatttta agatgagatt   420
 99 cagaaaaggg gcaggttagg ttctaaacta agattctcaa gttctaaaca gaatttcgct   480
101 taaggacact tatttattaa aactcctttt ccttttttccc aatgaagcct aataccctga   540
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116 caacacaaac atggatctag atggattatc ataaagcaaa catctctgga cccaccacag   180
118 gagtcaataa atacaacaca ggagacatca cagaagactg ctgttagcct cccaatcccg   240
120 aggcctcttc tctcccagaa aaggcagtct ctaacaaagt tgtcttagtt tctcttcccr   300
122 tttctccaaa gttttaaaat cttagcagac ccttcacatt taaagttgtg gacctctttc   360
124 tatgctaatt aattcatcac tcctttttaat gactctattt taaaaagaga ggtacctgck   420
126 tacatttttt aactgctcag attttaaatg tctacttgtc atattaacgt gaattgtttt   480
128 actgtgcagt atgcrgatgc ttccaggtgc cagtcatttg gataagcatt gccatttgcc   540
130 cccagttaaa tggccttaga cctctgaaat acttctaatt cattcctttg tgccctttca   600
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134 <211> LENGTH: 372
135 <212> TYPE: DNA
136 <213> ORGANISM: Bovine MMBT17660
138 <400> SEQUENCE: 5
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141 tttattcaac tcttatctga gtttccaatt ctgaaaaatc aagaaattca ttcaaaaatt   120
143 atagatagct gtagatataa gtatcagtct cagtactcac atggcatttt ttttcctgct   180
145 tgcttttgaa taaaaaccta cataatgaac acgataatat ggtaggattt gggccatgta   240
147 attttcccat ttagacttttt ttcattcatt ttctgtaatc tgatctcatg gtcttcttgm   300
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151 tctttcttttt tt                                                       372
154 <210> SEQ ID NO: 6
155 <211> LENGTH: 600
156 <212> TYPE: DNA
157 <213> ORGANISM: Bovine MMBT17471
159 <400> SEQUENCE: 6
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RAW SEQUENCE LISTING   DATE: 07/11/2005
PATENT APPLICATION: **US/10/750,185** TIME: 15:59:33

Input Set : **E:\MMI1100-2.txt**
Output Set: **N:\CRF4\07112005\J750185.raw**

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162 caatttctct tagtgccatc ggtgtatgtt acaagggcgg ggattgggct gatccgactc  120
164 atgcagttat tcaagaaaag aggtggctca gactcgctct gcttcaccaa ggatagaagg  180
166 ggagcggctt aggaaggttt taatttagct gaaaatacaa atggcaaaat caaaggtaat  240
168 tttttccctc ctgctgtaag aaacccagtg acatctgtga ggtggtttga ttcacatcar  300
170 gggaagcttt tgaaaaatgg agatggcaat taattggact tcagaggatg gtgacagttt  360
172 tttctaatgt cttgatttcc tatcaagaca ttggccactt ttctgcaggg cctcaagaca  420
174 gtaattagat gtcatgtcgg aatgtgactc caaggtctca ggcgacacca gttctaacta  480
176 gagcgccccc aaacacagga tgagacaatc agcttggccg gcggcgtcac ctgagagtca  540
178 acgcagcctt ccctcttcaa caacatggga aaacccgagt caatggagca gtttcacttt  600
181 <210> SEQ ID NO: 7
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183 <212> TYPE: DNA
184 <213> ORGANISM: Bovine MMBT14829
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189 atttgagaca tttattctct atctcaaaca tgtacccttc tggtcttcta ggataataag  120
191 aaacactact gtgaattact gttggattgt ggtggtggtg gtggtgcagg aggaggagag  180
193 gagaggagac ccctttaggg gaatgtgttg gggttgagca ttgagaacta ggatgtttct  240
195 gtgtggatca ggtttgtgca gagatggatc aatgactcag gagtgtacac agatcctatk  300
197 ctttgtaccc tttagaaatt aggctgatca tcagcctcac cttgaaatat ctcttattcc  360
199 tttgtaatca acatgtggaa ctgttgaaag aatgtctgct gatggatatc tttcaactaa  420
201 tcttaaaatg gtggatgtct gtttaatttt aaactgggta ccatgacatc ccctgtgctg  480
203 aacattcaca aacagctgga cttagaagga aatgtacaaa tgtagtgttc acagattact  540
205 aatataatga gggctgacag aattattata ggtcaccgag cctttaaata acatttattt  600
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209 <211> LENGTH: 598
210 <212> TYPE: DNA
211 <213> ORGANISM: Bovine MMBT00031
213 <220> FEATURE:
214 <221> NAME/KEY: misc_feature
215 <222> LOCATION: (1)..(90)
216 <223> OTHER INFORMATION: n is any nucleotide
218 <400> SEQUENCE: 8
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223 gtgttgaata tatggacttt catgacgtta cctaaacact tggccttcct ctcaacatcc  180
225 taaacatttg cttgtgaatt ttcttgattt gggatttata tttctgaagc atacacccaa  240
227 gggaagggat tcaggactgt cctcacccac ctctgtccat ggctcttttc cacaaaaacr  300
229 cctattcctt ctaggtcatc cttttgttca ctgccttccc tgctggtcta cccagctcct  360
231 atggcaaggc ctccttcacg ccagacttcc tccragaaat cactmtggac ccctcagccc  420
233 atcttctcct gcccatctct gaatacatct gggacctgat ttcatctgga ctgctgctct  480
235 ggttgtgtca ttgataagtt agctgacaaa gacaaaatga agtctaatac aaaatgaacc  540
237 atccgttgat tcataaccat acagcaargg agtctctctg gtcactttcc tggacagg    598
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242 <212> TYPE: DNA
243 <213> ORGANISM: Bovine MMBT00078
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RAW SEQUENCE LISTING　　　　　　DATE: 07/11/2005
PATENT APPLICATION:　US/10/750,185　　　TIME: 15:59:33

Input Set : E:\MMI1100-2.txt
Output Set: N:\CRF4\07112005\J750185.raw

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248 ccaggtttct atatggacct gcacagatgg gggtttaagc tatggatttg gaaggcaaag  120
250 ccacacgtct cctctggttt tgagaagaga tctaatccag gatctgactg ctcatgctcc  180
252 atcctcattg ggacattttc tgagctgagg tgtgagcaaa gcatcagcta aaacatgcac  240
254 cctgaggagc aaatagaaac ctaggtgggg ccccatcctc cttgcatggc tgcaggggtr  300
256 gtgtttgaat gggtggtcct tcctgactga tggccaccgt cagagggaaa tctctgaaag  360
258 cagataccag tttgagccat ggctctgccc gctctgggct gtgtgacctc agataagtca  420
260 ctgcgtgtct ctgagaccat ttctcttttt cgtgaggagg tgagggtcag ggctatggtg  480
262 aggtgttcca gagaaggtgg gtttgcacac acctggcact tgtgctgggc agcagaggat  540
264 gcatgggaac ccgaacctgg gttggggtca gggggctggg ggaaaggagg agagtgggga  600
267 <210> SEQ ID NO: 10
268 <211> LENGTH: 598
269 <212> TYPE: DNA
270 <213> ORGANISM: Bovine MMBT00032
272 <220> FEATURE:
273 <221> NAME/KEY: misc_feature
274 <222> LOCATION: (1)..(31)
275 <223> OTHER INFORMATION: n is any nucleotide
277 <400> SEQUENCE: 10
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W-->
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280 cttttctctt tttcccccc ttttagtagt caagggaaaa aaaaaaagag caagcagagc  120
282 tgacaggtat cattcagccg ccctggcttg tgaggggtgg tataaatgaa tctcagggct  180
284 cctggcttca catgattcaa acatgcgtta ttgaagatgg atgttcctta aaaaaagatt  240
286 gatggtggat gccgggctta gggtgccatt tatcattttg aatattattt agacttgccr  300
288 tgtaaacctg taacttgaga gttggacgag ccgrggctgg gtaggggcct gtgtgtgtgt  360
290 gtgtttccat cgattggcct tgggttatca ttgctgctga ccagatgcag tccctcccat  420
292 ttacagtata gaagacaccc ccctcccgta aaggagggac ggtttaattt tgaataattt  480
294 ccaaggacac tggggaaaat gaagtatctg tgatttacac taacaggcaa cttctttctc  540
296 tctccttctc tccctctctc ttccccgaca gaggcagtca tgtacgaaac attaaaat     598
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300 <211> LENGTH: 598
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307 <223> OTHER INFORMATION: n is any nucleotide
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314 nnnnnnnnnc tcaacccagc acagaggggc tggatcagaa ctcacttctc atcgggtttt  180
316 ccaccatggg gttcccctcg cccggacgct cgatcttgaa aacttcatcc acgaagacaa  240
318 tccgacagtc attgagagaa tcacccctac aagagaacag gcctgttagg atgaccagcr  300
320 ggccagtctc accgatgacc ccaaaagacc cggccacttg gacatgttct cagagcccat  360
322 gaacagctct gattctaatt ataysgtaga agaggttttc gyggggccct atgaactcgc  420
324 ctagctacta ccctcgmaaa ttcaagtcct accacatcag gaacgaggtg aaaacaaata  480
326 agccagagtt tcagtatgtg atgcattttc gagaataatt tttaaccttt ggcaggtgag  540
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331 <210> SEQ ID NO: 12
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RAW SEQUENCE LISTING   DATE: 07/11/2005
PATENT APPLICATION: US/10/750,185   TIME: 15:59:33

Input Set : **E:\MMI1100-2.txt**
Output Set: **N:\CRF4\07112005\J750185.raw**

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341 agcttaaatc agaaaacccs ttctttaata cagagtgaga agtggaatct ctgcttagtg   180
343 tgacatgaaa aatccagtct ctgtgagttt gctattagag taagagggat tcgttaggtg   240
345 agactaatgg gtagttgctc catggcatac gggatcttcc tggaccagga attgaacccr   300
347 tgtcycctgc atttcaggca gattctttac cactgagcca ccgaggaagc cctgtgcttg   360
349 ctcttytgtt tgttttttctt ggtgctgaga gtcacaggga tagatctgcc tggttgaatc   420
351 tgttgtgaaa gctttagcct caagatattc atgctcagca cagattcaga aaatgttctg   480
353 aatcatctgc tggctgaaac atccraggac tcagtacatc gtctgacaga tatgtggaca   540
355 ggagacatcc agtaaggatg cacagtggcc ggtgatcact cgaggtgtgt gacactcttg   600
358 <210> SEQ ID NO: 13
359 <211> LENGTH: 600
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361 <213> ORGANISM: Bovine MMBT00070
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366 gccttgtcct cccatcccca ctggagatct ttgctgggtg ccctgccctg ggaggggtgg   120
368 acacagaggg tgagagaccc tctctgcgca tgcggtctga tgggcagagg ccagtgaccc   180
370 gctgggcagc tcaggccagc cctgggcctc actgaaacct gtccctggcc cagcaggccc   240
372 ctgcttccag ggaggttctg gggtgtgatg tgggaagcgg ccttggtctg taaatgcacr   300
374 gtgcggagga tgcgtgccgt cccctgtgga gtgcggtctc agggcctggg cctaggtgca   360
376 tctgcaccca gacagccttg tttcattatc ttatgtattt gtctgtggct gtgtcaggcc   420
378 tcagctgcgg cacgcagagt ccaggcgtgc gggcttctcc cttgtcgagg tgtgcaggat   480
380 cagtagctgc gacccacagg ctgagctgct ccgcggcagg tgggactcag ctccccaagc   540
382 aggcatccaa cctgcatcgg atgggcaggc ggatcctcag ccactggacc ccccagcagc   600
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387 <212> TYPE: DNA
388 <213> ORGANISM: Bovine MMBT00430
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393 <223> OTHER INFORMATION: n is any nucleotide
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400 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnntctgcta ggttacattc   180
402 actataggcc taggagggct accagctggg gagagcggat ggcccactga aaagagcatc   240
404 ctaacaggc cacctagtga atgctcagct tcttagggaa acttcttttc agtattggtr   300
406 tctgaagtat tgatctgatg gaggaagagc catgctcttc atggagacca ttatcaggga   360
408 ttttatggac tattgcttca ggtggagtgt ggagtaatta tttccttaag actctttgta   420
410 tgtataattg tattcctgct actcaggata tgttcagaaa ataattacta ttgaattaac   480
412 tgcattgaca gtctttcart tctactacca agactgtttg catttaagct aagtttcctc   540
414 cttgccaata tgtgtctgtt acaataagca tttcaactaa attagcatct cagtaaca    598
417 <210> SEQ ID NO: 15
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 07/11/2005
PATENT APPLICATION: US/10/750,185   TIME: 15:59:34

Input Set : E:\MMI1100-2.txt
Output Set: N:\CRF4\07112005\J750185.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

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Seq#:8;  N Pos. 64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83
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Seq#:19; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:19; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:19; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:19; N Pos. 64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83
Seq#:19; N Pos. 84,85,86,87
Seq#:20; N Pos. 1
Seq#:27; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:27; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:27; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:27; N Pos. 64,65,66,67,68,69,70
Seq#:33; N Pos. 1,2,3
Seq#:35; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:35; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:35; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:35; N Pos. 64,65,66,67,68,69,70,71,72,73,74,75
Seq#:37; N Pos. 1,2
Seq#:38; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:38; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:38; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:38; N Pos. 64
```

. .   . .

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 07/11/2005
PATENT APPLICATION: **US/10/750,185**   TIME: 15:59:34

.   . .

Input Set : **E:\MMI1100-2.txt**
Output Set: **N:\CRF4\07112005\J750185.raw**

Seq#:44; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:44; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:44; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:44; N Pos. 64
Seq#:46; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:46; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:46; N Pos. 44,45,46,47,48,49,50

```
L:219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
M:341 Repeated in SeqNo=8
L:278 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0
L:310 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0
M:341 Repeated in SeqNo=11
L:396 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0
M:341 Repeated in SeqNo=14
L:536 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0
M:341 Repeated in SeqNo=19
L:568 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0
L:762 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
M:341 Repeated in SeqNo=27
L:929 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0
L:988 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0
M:341 Repeated in SeqNo=35
L:1047 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:1081 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
M:341 Repeated in SeqNo=38
L:1246 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:0
M:341 Repeated in SeqNo=44
L:1305 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0
L:1418 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50 after pos.:0
L:1560 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:0
M:341 Repeated in SeqNo=55
L:1727 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:0
L:1867 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:0
M:341 Repeated in SeqNo=66
L:2244 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80 after pos.:0
L:2276 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81 after pos.:0
L:2576 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:0
L:2880 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103 after pos.:0
M:341 Repeated in SeqNo=103
L:2993 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:107 after pos.:0
L:3160 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:113 after pos.:0
L:4216 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:152 after pos.:0
M:341 Repeated in SeqNo=152
L:4626 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:167 after pos.:0
M:341 Repeated in SeqNo=167
L:4874 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:176 after pos.:0
M:341 Repeated in SeqNo=176
L:5041 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:0
M:341 Repeated in SeqNo=182
L:5073 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:183 after pos.:0
M:341 Repeated in SeqNo=183
L:5348 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:193 after pos.:0
L:5679 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:205 after pos.:0
M:341 Repeated in SeqNo=205
L:5873 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:212 after pos.:0
```

VERIFICATION SUMMARY   DATE: 07/11/2005
PATENT APPLICATION: **US/10/750,185**   TIME: 15:59:34

Input Set : **E:\MMI1100-2.txt**
Output Set: **N:\CRF4\07112005\J750185.raw**

L:6202 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:224 after pos.:0
L:6477 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:234 after pos.:0